

PATENT ABSTRACTS OF JAPAN

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(54) COMPLETENESS TESTING METHOD

(57)Abstract:

PURPOSE: To detect a defect of the structural parts of a filter and a filter cartridge at high precision by measuring diffusion flow rate of pressure holding value at the pressure of at least two points in a range of $\leq 90\%$ value of a bubble point of the filter.

CONSTITUTION: Liquid such as water which is low in solubility of gas and small in diffusion coefficient and high in surface tension σ is utilized for test liquid. The contact angle of test liquid and a membrane is regulated to θ . The relation of radius (r) of a defect of a filter or a cartridge and the spray pressure P of test liquid is shown in $r = 2\sigma \cos \theta / P$. Spray amount QL (ml/min) is obtained by an expression $QL = 15\pi d^4 \sqrt{P} / 32L\eta$ in the case of (d) (μm) diameter of a defect, \sqrt{P} (bar) differential pressure, L(m) length of the defect and η (μpoise) viscosity of spray fluid. Accordingly, completeness can be tested at the pressures for two or more points of $\leq 90\%$ value of bubble, with the diffusion flow rate or pressure holding value and differential values between measurement points as an inspection standard point.

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